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**COURSE: PHYSIOLOGY**

**LEVEL: 200**

Question: Elucidate the physiological adaptations of the female to pregnancy?

Pregnancy is a unique period in a woman’s lifetime. A number of anatomic, physiologic, biochemical and psychological changes take place. These changes may easily be misinterpreted by physicians who lack experience in regard to pregnancy effects on a woman’s body. It is important that physicians caring for women understand the implications of these changes in order to avoid any diagnostic errors and errors of management.

Some factors include:

* **Skin changes:** Mechanical stretching of the skin over the abdomen and breasts can lead to striae. The increased levels of estrogen and progesterone have also been implicated. It should be realized, however, that striae may develop despite any preventative measures.
* **Cardiovascular changes:** Of all changes that happen in pregnancy, the single most important is the one involving the cardiovascular system. Adequate cardiovascular adaptation secures good placental development and thus appropriate fetal growth
* **Changes in the Gastrointestinal System:** Nausea and vomiting are the most frequent complaints involving the gastrointestinal system and usually happen in early pregnancy while heartburn happen primarily in late pregnancy. The gums become hyperemic and edematous during pregnancy and tend to bleed.
* **Blood Pressure:** A slight decrease in the systolic arterial blood pressure and a significant decrease in the diastolic pressure have been observed to occur in normal pregnancy. This decrease becomes evident in the late first trimester and continues throughout most of the second trimester. The lowest value are noted in mid pregnancy and there after the blood pressure returns toward non- pregnancy levels before term.
* **Blood flow changes in changes various organ systems during pregnancy:** The most profound changes in regional blood flow occur in the uterus with a 5 to 10 fold increases. This change starts early in pregnancy and continues until almost term. Approximately 20% of the maternal cardiac output perfuses the uterine vessels (Placental and nonplacental) The effect of pregnancy on coronary blood flow is still unknown.
* **Posture and Renal Function in Pregnancy:** In non- pregnancy individuals the up- right posture causes extra cellular fluid to shift to the legs, resulting in a relative decrease in central blood volume. This response is exaggerated during pregnancy and a similar response also occurs when the supine position is assumed. The normal values of renal function are altered appreciably and that values normal to the non- pregnant could indicate substantial renal impairment in the pregnant patient.
* **Changes in the Reproductive System:** Rhythmic tightenings of the uterus occur as part of preparatory changes for labor. These are called Braxton-Hicks contractions and since the advent of ultrasound, can be seen as early as eight to nine weeks. As the pregnancy advances these contractions become more frequent and they are more likely to be felt by the patient, usually they happen every 5 to 20 minutes and sometimes they may last as long as 30 minutes